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Predictors of presenteeism among hospital employees – a cross-sectional questionnaire-based study in Switzerland

Running title: Predictors of presenteeism among hospital employees

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Abstract

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Methods: Self-reported survey data from 1,840 employees of four hospitals and two rehabilitation clinics collected in 2015 and 2016 were utilized and analyzed.

Results: All studied work-related factors such as patient contact, job satisfaction, high work load, forced overtime, fear of job-loss, and particularly mental strain turned out to be significant and relevant predictors of presenteeism. Younger employees, female workers and employees with a chronic disease also were more likely to show presenteeism.

Conclusion: Work stress, work without patients, job dissatisfaction, a chronic disease and/or a younger age or rather less work experience seem to increase the chances of presenteeism among health-care workers.

Key words: Presenteeism, hospital employees, health occupations, Switzerland

Introduction

Around 1955 the US-American occupational scientist Auren Uris used the term presenteeism for the first time in a scientific context in an article on "how to build presenteeism" and addressed the question of how absenteeism could be reduced and the employee's time of attendance increased [1]. To this day, there is no universally valid definition of presenteeism. In principal, it describes an employee's decision to not stay at home when feeling in bad health, but being present at the work place [2].

In research there are two main strands that can be distinguished - the American and the European approach [1]. The American approach is mainly concerned with the consequences of presenteeism. For example the loss of production or output caused by employees who are impaired in health and thus generate costs for their companies. The issue is regarded mainly from an economical viewpoint [1, 3]. A well-known definition of presenteeism of Burton et al. is: "The loss of productivity due to employee health problems who are present but not fully productive" [4].

In contrast, the European approach mostly deals with the causes and influencing factors of presenteeism. In particular Aronsson and colleagues shaped the current understanding of presenteeism in Europe [2, 3]. A common definition states that sickness presenteeism is a phenomenon of employees attending work despite being sick or feeling like they should have taken sick leave [2]. An adequate description was also used by Evans et al. and Johansson & Lundberg: "Going to work despite feeling unhealthy or experiencing other events that might normally compel absence (e.g., child care problems)" [5, 6]. Presenteeism is not a new phenomenon, but compared to absenteeism it has not been studied extensively [7].

Absenteeism refers to any absence from work due to justified (sick leave) or unjustified reasons (taking "a day off") and a lot of research has been published on the topic [8].

Due to epidemiological and demographic changes, in which chronic diseases are increasing rapidly and consequently also influence work place behavior, it could be shown that sickness presenteeism is rising in general. In 2010 the European Working Conditions Survey estimated that 40% of the employees had worked while they felt sick for at least one day in the previous 12-month period (40'000 respondents in 34 countries) [9].

Similar trends can be observed in Switzerland. According to the survey "Barometer Gute Arbeit" launched by Travail Suisse in 2015, 30% of employees interviewed stated that they often or very frequently work when feeling sick. Just 19% never worked while they felt sick. The researchers explain the results of their study by strong work ethic among the questioned employees and the worker's fear of losing their job, if being absent too often [10].

Presenteeism is more prevalent among employees within the educational sector and the health and welfare services compared to other industries [2, 11]. Especially physicians seem to show an increased prevalence for presenteeism [12-15]. Senden et al. investigated this phenomenon among physicians in Italy, Sweden, Norway and Iceland where the prevalence was determined to be between 70% and 86%, depending on the country [14]. The study of Klein et al. showed that 90% of the questioned would appear to work while being sick at least once a year [15]. Especially in the healthcare sector employees are subject to elevated numbers or levels of risk factors that may lead to presenteeism. They face work that is challenging and are confronted with long working hours. Other attributes that were described for the health sector in relation to presenteeism were the often high specialization of the job and employee's increased risk for stress and burnout [1, 7, 16]. Healthcare professionals often feel responsible for their patients, which is caused by a strong sense of duty and moral obligation for the well-being of others. This can lead to an increase of pressure to attend work despite being sick. Furthermore there is often a shortage of staff, which leads to a high workload. The prevalence of rationed patient care encourages presenteeism as well [2, 7, 17]. In a study by Giaever et al. it was shown that among the physicians examined, high work pressure, insufficient staffing und managers that were less supportive, would all promote presenteeism [18]. Similar results were obtained by Mekonnen et al. in whose study of healthcare workers it was shown that pressure from the supervisor and a shortage of personnel are significant predictors of presenteeism [19].

During the past years of research several determinants or correlates of presenteeism have been identified. The causes may be work-related (job insecurity, fear of losing income, strict absence polices, downsizing, work overload, understaffing, overtime, employee-employer relations, job dis-satisfaction, physical demands, experienced stress) [1, 11, 16, 20, 21] or based on person-related factors (gender, age, occupation, education, state of health, individual

boundarylessness). Studies show that work-related factors tend to have a bigger impact than personal characteristics [11, 22, 23].

Many different questionnaires are used to measure presenteeism. In Europe the following question is used frequently: “How many times during the last 12 months have you gone to work although your state of health implied that you should have taken sick leave?” The frequency scales used were: never; once; 2-5 times; over 5 times [11, 24]. There are also studies that applied two- or four-item scales to measure presenteeism [25, 26].

They make it difficult to compare the results regarding prevalence. Furthermore the socio-cultural distinctions and the various health systems complicate comparisons between countries [27].

Eventhough investigations to estimate the costs of presenteeism are challenging, evidence is growing that the frequency and expenses of presenteeism are greater than those of absenteeism [28]. Presenteeism is an „invisible behaviour“, associated with indirect costs and are therefore difficult to measure [29, 30]. Health Promotion Switzerland shows in a three-year comparison that the estimated health-related costs of companies vary between 5.0 and 5.8 billions of Swiss Francs. About two thirds of the costs from the estimated productivity loss are caused by presenteeism and one third by absenteeism. This demonstration of the higher health-related costs of presenteeism has increased the interest in its research significantly [31].

Sickness presenteeism among healthcare workers highlights the importance of a systematic investigation of this phenomenon, because it can affect the quality of health care provided and decrease the performance and productivity at work [30, 32].

Presenteeism has also been identified as a risk factor for committing serious errors and safety violations [33] and for disease transmission [34] as well as for negative longterm health

outcomes such as depression, burnout, and future sickness absenteeism [24, 35-37]. According to the Job Stress Index 2018 of Health Promotion Switzerland, productivity losses in Swiss companies resulting from presenteeism average 11.3% of planned working hours [10].

To reduce the prevalence of presenteeism and to promote a behaviour that supports the health of the employees in hospitals, it is vital to investigate the predictors to create appropriate occupational interventions.

Due to the complete lack of research data regarding presenteeism in Switzerland's health sector, the following hypotheses have been deducted from the research literature:

- Work-related factors such as fear of job-loss, mental strain, forced overtime, high workload, patient contact and job satisfaction are significant predictors for presenteeism.
- Person-related factors such as female gender, young age, higher education and the suffering from a chronic desease are significant predictors for presenteeism.

Methods

Data and study sample

This study followed a cross-sectional design. In doing so, we collected self-report survey data from employees working at four public hospitals and two privately operated rehab clinics in German-speaking part of Switzerland between summer 2015 and spring 2016. Specifically, employees working at the university hospital, a cantonal hospital and two district hospitals were surveyed. The participation was voluntary and anonymous. Overall, the response rate was slightly over 41% - and varied between 36% and 49% across the different hospitals. The survey was titled "Work and Health in the Hospital" and contained 100 questions (single items) and groups of questions (scales). A pre-evaluation of the survey had indicated that it took participants, on average, roughly, half an hour to complete the questionnaire. The surveys were administered in a paper-pencil format and the hospital employees were asked to

return these to the University of Zurich within four weeks. The final data set contains responses by 1,840 hospital employees of which the majority (i.e., 1,441) were health professionals (as opposed to administrative and other staff). Participants were on average 45 years of age (58%) and more than 85% of all participants were women. Specifically, this resulted in a female share of more than 94% among care-givers and nurses (including midwives) and almost 64% among physicians. Overall, the participants were predominantly highly educated (66%).

Measures

First, the results of the survey regarding presenteeism are shown in frequency tables (see Table 1). The bivariate coherence analysis is displayed in cross-classified tables that contain the antecedents of presenteeism. Overall, ten different variables were assessed as exposure variables and antecedents of presenteeism – these can be grouped into (1) work-related variables (i.e., mental strain, fear of job-loss, forced overtime, high workload, patient contact and general job satisfaction, and (2) person-related variables (i.e., gender, age, educational level and chronic disease).

Dependent variable

So far, there is no unequivocally accepted measure of presenteeism [21]. Nonetheless, we followed the standard German version of the COPSOQ and used the following items to assess presenteeism: (1) "How often do you feel at the end of a working day that you have not done enough, even though you have worked very hard?"; (2) "How often do you come to work although you feel really unwell and sick?"; (3) "How often do you come to work although the doctor has put you on sick leave or intended to do so?". Additionally we used two other items from a survey of WIdO, the research institute of the german health insurer AOK, as measures of presenteeism, namely (4) "How often do you wait for the weekend to recover from a current illness?" and (5) "How often do you note call in sick at work, but take holidays to recover?" The response scale ranged from "never" (score 0), "infrequent" (score 1), "sometimes" (score 2), "often" (score 3) to "always" (score 4). An initial analysis of the internal consistency of the five items indicated that a reduced scale comprising items 2,3,4 and 5 provided a sufficient reliability (Cronbach's $\alpha = .72$).

Independent variables

Fear of job-loss, was measured using the item: “Are you afraid of losing your job?” (response categories: 3 = “yes, very strong”, 2 = “yes, quite a lot”, 1 = “no, I do not think so”, and 0 = “no, not at all”).

Mental strain was measured using the respective six-item scale from the Copenhagen Psychosocial Questionnaire (COPSOQ) [25]. An example item (1) is: “I quickly get under time pressure when I’m working” or item (6): “I’m unable to sleep at night after having left something unfinished at work: (response categories: 3 = “I strongly agree”, 2= “I agree”, 1= “ I disagree”, 0 = “ I strongly disagree”). The six-item scales provided good internal consistency, $\alpha_{std} = .77$

Forced overtime was measured using the item: “I’m often forced to work overtime” (response categories: 3 = “yes, very strong”, 2 = “yes, quite a lot”, 1 = “no, I do not think so”, and 0 = “no, not at all”).

High workload was measured using the item: “In the last years my work has become more and more“ (response categories: 3 = “yes, very strong”, 2 = “yes, quite a lot”, 1 = “no, I do not think so”, and 0 = “no, not at all”).

Patient contact was measured using the item: “Do you have frequent and direct patient contact?” (response categories: 1 = “yes”, 0 = “no”).

Job satisfaction was assessed using the item: “How satisfied are you with your work in general?” (response scale from 0 = “not satisfied at all” to 10 = “completely satisfied”).

Chronic disease was assessed by asking the participants: “Do you have a chronic disease or health issue?” (response categories: 0 = “no”, 1 = “yes”)

Age was assessed by providing participants with the following five categories: (1) <25 years, (2) 25 – 34 years, (3) 35 – 44 years, (4) 45 – 54 years, and (5) 55+ years.

Education was assessed by asking participants about their highest educational level achieved: (1) Low: No vocational education, (2) medium: Basic vocational education (apprenticeship), (3) high: University-entrance diploma (high-school graduation), higher vocational education, and (4) very high: University.

Analyses

Descriptive statistics were calculated for the study population (hospital employees). The relative frequency of presenteeism (outcome variable) and all exposure variables were calculated for each occupational category (nurses and midwives / physicians and other academic staff / medical-therapeutic and medical-technical staff / administrative and other service staff).

For the sake of clarity work- and person-related factors of presenteeism were first summarized in cross-classified tables.

To displays the descriptive statistics, internal consistencies, and zero-order correlations for the full sample a correlation analysis was used between all the variables (gender, age, educational level, fear of job-loss, mental strain, forced overtime, contact with patients, general job satisfaction, high workload, chronic disease).

Linear regression analyses were applied and by checking the standardized beta coefficients we were able to estimate and compare the individual and independent effects of all predictors. This procedure was also used to test the relationship between exposure and outcome variables and to assess the explained variance (R squared) of the outcome variable. The analyses was carried out for the full study sample. All statistical analyses were conducted using SPSS (Version 25).

Results

Descriptive statistics

More than one seventh of the study population did not show any signs of presenteeism at all whereas almost one third showed a moderate and one of thirteen a comparatively high degree of presenteeism (see Table 1). This pattern was consistent across occupations, while

physicians & other academic staff had a slightly higher tendency towards presenteeism compared to the other professions. Yet, there was a small but significant difference between the sexes. Women showed slightly more often presenteeism than men.

In light of the different occupations, physicians and other academic staff reported the highest mental strain, whereas mental strain for the other employees was observed to be close to the hospital average (see Table 1). In contrast, a high workload was most pronounced in nurses and midwives (72%) and also therapeutic and medical-technical staff (67%) and administrative staff (65%), but not equally prevalent in physicians (54%). On the other hand, forced overtime was most frequently observed in physicians (63%), but much less so for the other occupations (31-39%) (see Table 1). The fear of losing the job was generally very low (4-12%), while high job satisfaction was overall quite widespread (60-68%) with no big differences among the occupations. While the physician's answers often pose an exception to the other employees, this was not the case for the questions regarding presenteeism, as mentioned above.

As expected, the healthcare professionals (nurses/midwives, physicians/other academics, therapists/medical-technical staff) were often in contact with patients during their work routine, while the administrative and other staff rarely where (see Table 1).

Bivariate correlation analyses

In Table 2, the correlations between all relevant study variables are presented for the total sample. On a bivariate level, regarding presenteeism, particularly the negative correlation with job satisfaction ($r=-.25$, $p<.001$), with mental strain ($r=.33$, $p<.001$) and with forced overtime ($r=.21$, $p<.001$) appears worth mentioning. But because such bivariate correlations might only tell half of the story, we conducted a multiple linear regression analysis to inspect the respective variable's unique associations with presenteeism.

Multivariate regression analyses

As outlined, a multiple linear regression analysis was conducted to identify relevant and independent predictors of employees' presenteeism. As can be seen in Table 3, the statistical assumptions were sufficiently satisfied (e.g., no multicollinearity among predictors, Durbin-

Watson statistic = 2.04). Overall, the estimated regression model significantly and substantially explained the variance in presenteeism ($R^2_{adjusted}$ = .21, p<.001).

Results further revealed that the work-related antecedents, specifically mental strain, were particularly relevant. Mental strain turned out as the strongest predictor of presenteeism by far (β=.29, p<.001). In addition, other work-related antecedents, such as forced overtime, increasing workload, or the fear of job-loss were also found to be significant but not particularly strong predictors of presenteeism (see Table 3). Specifically, the less contact employees reported to have with patients, the less frequently employees displayed presenteeism (β=-.09, p<.001). Furthermore, the analysis showed that the more satisfied with work in general the employees are, the less presenteeism can be expected (β=.- 09, p<.001).
Table 3 shows within the person-related predictors, the age seems to be important. Older employees are less likely to show presenteeism than younger ones (β=-.18, p<.001). While gender also represents a significant predictor, it does not appear to be a strong one. In general, women are more prone to presenteeism than men (β=-.05, p<.05). On the other end, education is not a significant predictor. The data also showed that suffering from a chronic disease increases the probability of presenteeism (β=.13, p<.001).

Discussion

It seems that presenteeism is quite common among health professionals in the study population; almost 40% of the study participants showed increased signs of presenteeism. Physicians and other academic staff show higher presenteeism than nurses and midwives. But the values were also slightly elevated compared to the other professions. These observations can be compared to results obtained by Hägerbäumer et al. involving employees in German hospitals [26]. They found that physicians showed presenteeism more often than the other hospital employees. Possible reasons might be found in the increased mental strain, being faced with more and tougher decisions and a greater amount of forced overtime.

Even though it is challenging to compare the different studies, since the questionnaires and analytical methods were not the same, our results seem to be largely consistent with findings from other studies.

Our analyses could mostly confirm the currently available data and results of other studies with respect to the work- and also person-related factors. The results encourage the hypothesis that in particular the work-related factors play an important role in the occurrence

of presenteeism [20, 23]. The person-related factors, such as sex, education level and job position (not shown in the analysis) have a less significant impact on the frequency of presenteeism. On the other hand, it was shown that there are two person-related predictors that are of a certain significance: both the age and suffering from a chronic disease appear to be important predictors (see Table 3).

Work-related factors

High workload, forced overtime and mental strain

Our most important findings corroborate those of previous studies, documenting that work-related factors influence the occurrence of presenteeism [7, 22, 26, 38]. Mental strain and fear of job-loss as well as forced overtime and high work load were found to be significant work-related predictors of presenteeism. Similar results were presented in a non-representative study by Hägermäuer and colleagues. They indicated a strong relationship between presenteeism and high workload, job insecurity and overtime [26]. Dhaini et al. arrived at analogous conclusions, linking work-related factors such as increased time pressure and high workload to presenteeism [17]. Regular overtime, especially when there is no agreement between desired and actual working time, increases the probability of presenteeism. It is assumed that permanent involuntary overtime work among health personnel indicates a high attendance pressure due to increased workload, which can make it more difficult to stay away from work due to sickness.

In the hospital, employees often have to struggle with downsizing and rationalization, understaffing, and a lack of substitutability by colleagues [11]. Under certain conditions this can lead to an increased tendency of employees to go to work in the event of illness.

Job insecurity

Other determinants of sickness presenteeism have been highlighted in the literature. Economic factors, such as job insecurity, appear to be strong motivators to continue to work while sick [20, 22, 23]. In a review written by Steinke et al. it was shown that the fear of losing one's job is an important factor for presenteeism [23]. Such tendencies were confirmed by a cohort study of Virtanen and colleagues who were able to demonstrate that a high unemployment rate in the geographical area of a certain cohort leads to fewer employees calling in sick. Under the assumption that the sickness rate is average in such places, this

would imply that presenteeism is higher [39].

In our study this predictor did not seem to strongly influence the decision of going to work ill. A possible reason might be the current situation of the job market in Switzerland. There is rather a lack of personnel in Swiss hospitals, which does make positions more secure and therefore leads to the health employees not worrying about losing their jobs. According to Shoss et al. presenteeism can be a manifestation of job insecurity in periods of high unemployment rates [40]. The low rate in Switzerland (2.4%) compared to other European countries or the EU (7%) may further explain the difference between the studies [41].

General job satisfaction

Previously published studies show ambiguous results regarding the influence of job satisfaction on presenteeism. Our findings confirm the importance of job satisfaction. According to our data it can be an important factor to prevent presenteeism. The more satisfied the health employees are, the less likely they go to work despite being sick – and vice versa. This result corresponds with other studies [13, 42].
Rosovold et al. showed that satisfied employees who feel content and that they are part of their company can be associated with a lower frequency of presenteeism [13].

This finding could be an important handle for a company to reduce presenteeism behavior. There are other studies that show the opposite. For example Migralia et al. demonstrated a positive correlation between presenteeism and job satisfaction ($p=0.12$) [20].

Patient contact

This predictor was rarely examined in the literature so far. We assumed that caused by loyalty the employees engaging with patients would rather tend to presenteeism compared to employees with no patient contact. But the data showed that in fact the opposite was the case. Hospital employees with more contact to patients developed less presenteeism. A possible explanation might be the awareness of these employees of the contagiousness they pose when they are sick. And in consideration of their patients they would then not go to work and stay at home.

Person- related Factors

Gender

Previously published studies do not entirely agree on the influence of gender. Our study showed that gender is only a weak predictor of presenteeism. Women seem to be slightly more susceptible to going to work despite feeling sick. This result is in line with other empirical findings [3, 43]. On the other hand, there are also published studies that did not find a significant relationship between gender and presenteeism [13, 22, 44]. It has been postulated that the different outcomes in such studies might be caused by the sample distribution (ratio of women vs. men) [26]. Since the female gender might be a significant predictor for presenteeism, additional research involving a representative sampling is necessary.

Age

Our results suggest that age is a strong determinant of presenteeism. The older an employee, the less likely they show behavior of presenteeism. This is in consistency with some previous studies that have found that presenteeism is more common among young to middle-aged workers (below age of 40), presumably due to stronger attendance requirements by more junior staff [3, 11, 13]. Rosovold et al. were able to demonstrate that employees aged 30-39 were the group most likely to conduct presenteeism [13]. Similarly Hägerbäumer et al. showed that hospital workers below the age of 40 more frequently attended work despite feeling sick [26]. The opposite was observed for employees aged 50 and above in a study conducted by Aronsson et al. [11].

State of health / chronic disease

According to our findings, suffering from a chronic disease appears to be a significant predictor for presenteeism. This is in line with a cross-sectional study by Aronsson and Gustafsson et al. which showed that the worse a worker's general state of health is, the higher is the level of presenteeism [11]. Other studies came to the same conclusion. This effect is particularly noticeable in people with chronic illnesses [42, 45]. An employee with a chronic disease (migraine, depression, etc.) is more often exposed to the decision-making process between the two options for action (sickness absence / presence). Considering a constant outcome in these decisions would imply that the more often an employee experiences a health impairment, the more frequent they will practice presenteeism. One can even assume that if

an employee has missed several days of work already during a year, he/she will tend to go to work sick more likely. However, the causal direction of this relationship is not proven. Most of the results are based on cross-sectional studies. Consequently, a reciprocal direction of action must also be considered. For this, longitudinal studies and analyses need to be carried out.

Strengths and Limitations

The present study provides an overview of the correlation between presenteeism and work- and person-related predictors. It gives an idea of how much the hospital employees are influenced by the various factors with regard to their tendency to go to work while feeling sick. The implementation of well-established measures and scales in the questionnaire improves the value of the data and thereby increases the reliability of the results. It was not focused on a single health profession as is usually the case. For future studies, it would be interesting to generate a questionnaire specifically for presenteeism. Additionally, focusing on a single profession (e.g. physician or nurse) might allow more accurate results. Including more, but randomly selected hospitals from the whole of Switzerland would be beneficial as well with regard to the generalizability of the findings.

Additional influencing factors that would be worth to investigate are:

Not want to burden colleagues with additional work, staff shortage, restrictive absenteeism management, absence of a regulation on substitution, individual boundarylessness.

Limitations of this study include the fact that the cross-sectional design does not allow causal inferences about the observed relationships between variables, quantifying presenteeism relied solely on self-reporting measures and the return rate of the questionnaire-based survey was rather low (41%) and may have resulted in selection bias. As mentioned before, the hospitals and rehab clinics included in this study are not randomly selected. The same applies for the participants of the study, without a random selection a generalization of the results is

not possible. Furthermore the dependence on the ability of participants to recall events that occurred in the past is limiting to the study. The average remembrance ability of the participants should not be ignored (recal bias) [46].

The potential methodical bias cannot be neclected. With regard to the use of self-reported data, it is difficult to use other measures of sickness presenteeism because only the individual knows if he or she is sickness present or not.

Conclusion

Due to the many negative consequences of presenteeism (health issues, loss of productivity, increased costs) it becomes evident that a reduction of people going to work while feeling sick would be desirable [30, 32]. In the long term, reduction of presenteeism is beneficial for both employer and employee. In our study we could demonstrate that work-related stressors such as mental strain at work, involuntary overtime work or high workload or job dissatisfaction encourage presenteeism behavior. In contrast, a better satisfaction with work showed to have a favorable influence (i.e. leading to less presenteeism).

Interestingly, the different professions showed a very similar tendency towards presenteeism. Accordingly workplace health promotions in the area of presenteeism could be employed across the entire organization. Interventions on a behavioral and relation-based level would be necessary. It seems that many factors leading to presenteeism are related to high workload. An organisational structure that aims at reducing stress would be beneficial. Workshops on self-management could be offered, a different handling of undesired overtime could be introduced and generally a discussion about this topic should be started between management and workforce. And since it became clear during our study that satisfaction at the workplace is a resource, an enhancement thereof would be welcome and could be aided by employee surveys.

Further research is essential to examine causes and predictors of presenteeism. More specific questions have to be posed and a better general understanding of the topic should be achieved in order to establish efficient measures to counter presenteeism.

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Table 1. Specific working conditions and presenteeism among hospital employees

	Nurses & midwives	Physicians & other academic staff	Medical-therapeutic & medical-technical staff	Administra-tive and other service staff	**Total hospital employees**
	N=882	N=306	N=253	N=385	**N=1,826**
Fear of job-loss					
No, not at all (0)	58.8%	53.3%	48.6%	37.4%	**52.0%**
No, I don't think so (1)	37.1%	37.9%	47.4%	50.4%	**41.5%**
Yes, quite a lot (2)	2.5%	7.5%	2.8%	8.8%	**4.7%**
Yes, very strong (3)	1.6%	1.3%	1.2%	3.3%	**2.0%**
Mental strain					
Low (0-5)	24.7%	14.4%	23.5%	31.5%	**24.2%**
Medium (6-8)	40.2%	27.4%	36.4%	34.5%	**36.4%**
High (9-11)	25.8%	36.5%	27.9%	22.6%	**27.2%**
Very high (12-18)	9.2%	21.7%	12.1%	11.4%	**12.2%**
Forced overtime					
Strongly disagree (0)	10.9%	6.3%	11.9%	23.3%	**12.8%**
Disagree (1)	50.2%	30.6%	54.4%	45.8%	**46.8%**
Agree (2)	31.6%	41.8%	29.8%	23.3%	**31.3%**
Strongly agree (3)	7.3%	21.4%	4.0%	7.7%	**9.3%**
High workload					
Strongly disagree (0)	2.9%	4.3%	6.8%	6.7%	**4.4%**
Disagree (1)	25.1%	41.7%	26.7%	28.8%	**28.8%**
Agree (2)	45.2%	40.0%	46.2%	44.0%	**44.2%**
Strongly agree (3)	26.8%	14.4%	20.3%	20.5%	**22.5%**
Patient contact					
No (0)	4.1%	19.3%	14.3%	66.0%	**21.1%**
Yes (1)	95.9%	80.7%	85.7%	34.0%	**78.9%**

Job satisfaction					
Low (0-5)	8.6%	9.2%	6.7%	10.4%	**8.8%**
Medium (6-7)	31.3%	26.4%	30.4%	21.4%	**28.3%**
High (8-10)	60.0%	64.4%	62.6%	68.2%	**62.9%**
Presenteeism					
No (0)	15.7%	13.7%	16.0%	14.8%	**15.2%**
Low (1-3)	47.8%	41.3%	44.0%	46.5%	**45.9%**
Moderate (4-7)	30.0%	35.8%	32.0%	30.6%	**31.4%**
High (8-16)	6.5%	9.2%	8.0%	8.1%	**7.5%**

Tabel 2. Correlation matrix of study variables

Variable		1	2	3	4	5	6	7	8	9	10	11
1	Gender (dummy)	–										
2	Age (1-5)	.09***	–									
3	Educational level (0-20)	.18***	-.13***	–								
4	Fear of job-loss (0-3)	.03	.17***	-.06*	–							
5	Mental strain (0-18)	.03	.06*	.17***	.17***	(.77)						
6	Forced overtime (0-3)	.06**	.01	.25***	-.02	.43***	–					
7	Patient contact (dummy)	-.12***	-.10***	.10***	-.14***	-.01	.06**	–				
8	Job satisfaction (0-10)	.04	.17***	-.07**	-.08**	-.29***	-.16***	-.01	–			
9	High workload (0-3)	-.00	.15***	-.08**	.05*	.28***	.33***	.03	-.18*	–		
10	Chronic disease (dummy)	-.02	.10***	.00	.09***	.13***	.05*	.04	-.08***	.06*	–	
11	Presenteeism (0-16)	-.05*	-.14***	.06*	.10***	.33***	.21***	-.05*	-.25***	.14***	.14***	(.72)

Note. N = 1,764 – 1,840. Spearman's correlation coefficients (r) are calculated and tested for statistical significance. Gender coding: 0 = female, 1 = male. Cronbach's α for internal consistency of a multi-item scale is plotted in the diagonal (in brackets).

* p<.05, ** p<.01, *** p<.001.

Table 3. Explaining presenteeism – results of a multiple linear regression analysis

Dependent variable: • Presenteeism (sum score 0-16)	**B** (unstandardized regression coefficient)	**Beta** (standardized regression coefficient)	p-value
Independent variables: Work-related factors			
• Fear of job-loss (0-3)	0.10	.046	.039
• Mental strain (0-18)	1.38	.289	.000
• Forced overtime (0-3)	0.20	.064	.013
• High workload (0-3)	0.19	.060	.014
• Patient contact (dummy)	-0.58	-.091	.000
• Job satisfaction (0-10)	-0.15	-.089	.000
Person-related factors			
• Gender (dummy, 1 = male)	-0.36	-.049	.030
• Age (<25, 25-34, 35-44, 45-54, 55+)	-0.40	-.178	.000
• Education (low, medium, high, very high)	-0.04	-.014	.540
• Chronic disease (dummy)	0.74	.126	.000

Note. N = 1,685. $R^2_{korr.}$ = .21. Durbin-Watson-Statistics = 2.04. Cases with missing values were excluded.